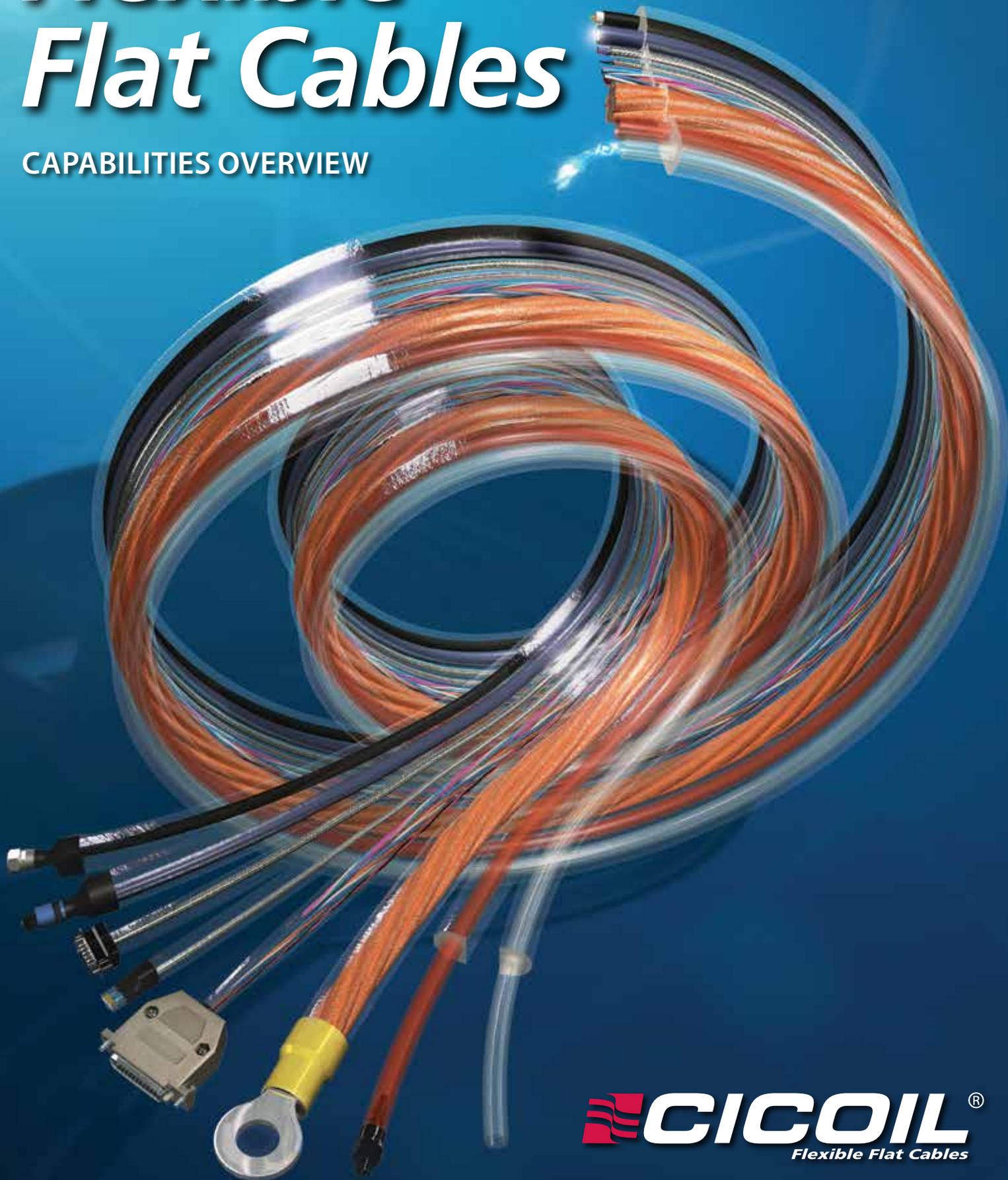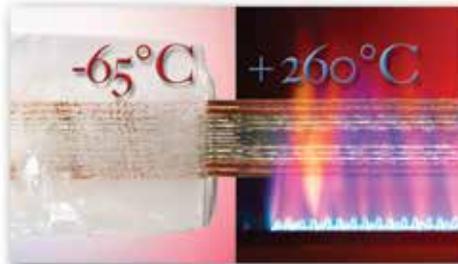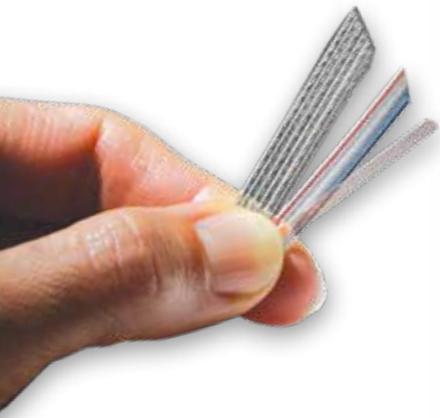# Flexible Flat Cables

CAPABILITIES OVERVIEW

CICOIL®

Flexible Flat Cables

The **Future** of **Cabling** is Here...

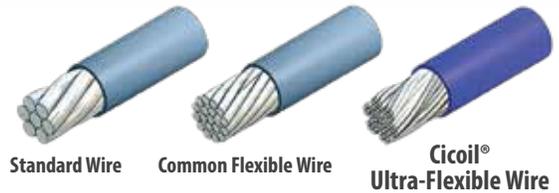## Combine power, signal, video, air & liquid in a crystal-clear flat cable.

Cicoil high-flex flat cables are the Future of Cabling. Our patented extrusion technology produces the most high performance flat cables available with the superior attributes you're looking for:

- **Ultra flexible:** Tens of millions of flex cycles in the tightest bend radius applications
- **Unlimited variation:** Micro size to 400mm wide cables, wires from 4 to 44 gauge, also including fiber optics, tubing, or coax, so you can get the exact cable you need
- **Extreme Environments:** Our cables perform from -65°C to +260°C, and under exposure to water, steam, chemicals, and oils

Built-In Flexibility

In addition to the strong, flexible cable jacketing, every Cicoil cable incorporates finely stranded, ultra-flexible wire conductors. Conductors and shields are also specially heat-treated and plated to maximize their flexibility, while providing extremely long flex life in the most demanding applications. Cicoil flat cables are rated for over ten million cycles, and our cables have performed for hundreds of millions of flexing cycles in some of the most demanding robotic, continually flexing equipment applications.

Standard Wire **Common Flexible Wire** **Cicoil® Ultra-Flexible Wire**

Standard 24 AWG wire has 7 base strands, 'flexible' wire has 19 base strands, while Cicoil High-Flex wire has 66 base strands. All Cicoil wire has base stranding of 40 AWG minimum, versus 36 AWG and larger in other 'flexible' wires.

Standard or Custom Cables

Cicoil's patented extrusion process makes custom cables easy, so you can quickly get the exact cable you want. Try our Online Configurator, where you can design your own cable in minutes and get an immediate drawing and quote!

Check out our many standard cables and assemblies, all available from stock for immediate delivery.

Complete Cable Assemblies

Cicoil can provide complete cable assemblies, with any connectors required by the customer. Every cable assembly is 100% tested by our automated test equipment, so reliability and performance is guaranteed. Our award-winning quality system is certified to ISO 9001 standards, including the strict AS9100 aerospace specification. Cicoil cable assemblies are used on the space shuttle, supersonic missiles, and industrial robotics, in some of the most demanding applications possible. So you can rest assured that your cable assembly will receive the same dedication and care, ensuring reliable, high performance operation.

Visit Cicoil.com to learn more, or call (661) 295-1295 to speak directly to an Application Engineer.

ISO 9001   AS9100 CERTIFIED   UL   CE   CSA   RoHS COMPLIANT   LEAD FREE CICOIL   REACH COMPLIANT   FAA FLAME TESTED

CICOIL®
Flexible Flat Cables

Standard Cables and Assemblies

High Performance Motion Control Cables

Ideal for high performance motion applications, shielded power and signal conductors are combined into a single, high-flexibility cable. Available in 1, 2 or 3 servo axis versions, in multiple power ratings for all standard rotary and linear servo motors. All cables listed below are Halogen Free + Flame Retardant (HFFR).

- Motion Series Cable: Designed for 1 KW, 2 KW and 3 KW Servo Motors; Shielded power and signal wires for 1, 2 or 3 Servo Axes
- Motion Series Plus Cable: Signal Pairs for 1, 2 or 3 Servo Axes
- EZ-Flexx™ Motion Series Plus: Flat Cable for a Round World—Stripping and Connectorizing as Easy as with Round Wire and Cable
- Hi-Flex Motor Power Cable: Shielded and Unshielded 4 Conductor Servo Power Cables
- Hi-Flex Shielded Signal Cable: High Performance Twisted Shielded Pairs for Data Transmission Applications

Data & Video Cables & Assemblies

Video/data communications cables using standard industry protocols in a flat, flexible package. Due to Cicoil's patented Flexx-Sil™ jacketing, these cables feature superior durability in harsh environments and long cycle life in dynamic, flexing applications. All cables listed below are Halogen Free + Flame Retardant (HFFR).

- Ethernet Cables: Cat 5e and Cat 6A
- Camera Link Cable
- Controlled Impedance Cable
- USB Cables: 2.0 and 3.0
- Flexible Coax Cable: 50 ohm & 75 ohm
- FireWire Cable
- HDMI Cable

Unshielded Cables: Multi and Single Conductor

Cicoil has multiple variations of high flex, unshielded cables and assemblies in flat, flexible configurations. Ranging from 1 to 64 conductors in flexible flat cables, standard IDC, festoon or thermocouple variations, Cicoil's selection of standard cables provides the highest variety available anywhere. All cables listed below (except Thermocouple Cables - HFFR) have passed testing for smoke, toxicity, flammability, and halogen content (LSZH).

- Hi-Flex Unshielded Multi-conductor Cable for Power and Control Applications
- Hi-Flex, Hi-Temp IDC Ribbon Cable
- Ultra Flexible Micro IDC Ribbon Cable
- Hi-Temp Festoon Cable
- Hi-Flex Unshielded Single Conductor Cable for High Voltage Applications
- Type J & Type K Thermocouple Cables

All cables are jacketed in Cicoil's exclusive, clear Flexx-Sil™ engineered rubber, delivering the highest flexibility in the most extreme environments.
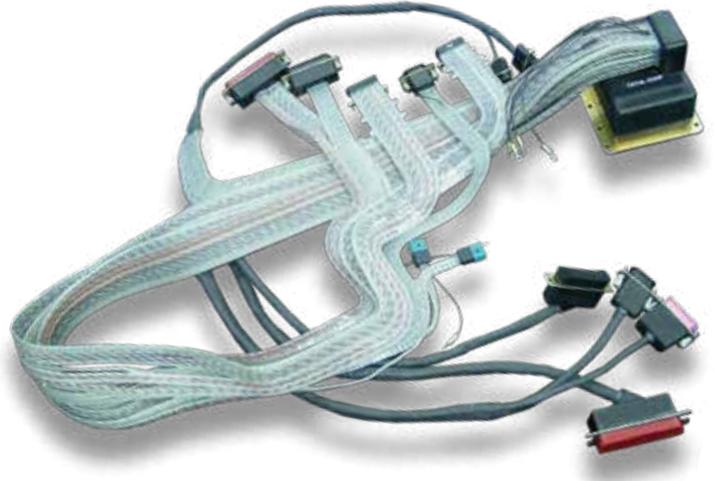
Cables are available in continuous lengths, or as cable assemblies, complete with connectors.

Custom versions of Cicoil's standard catalog cables are offered. When cables need to be stacked together, or where a lower friction surface is desired, there are two different cable finishes available: GlideRite™ and SlideRite™.

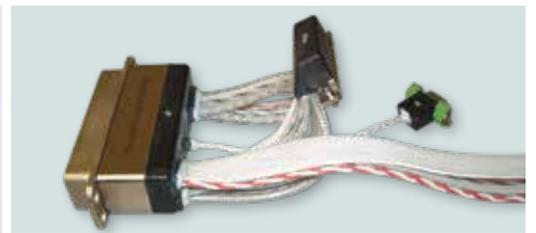# Cable Assemblies – "Specials Are Standard at Cicoil"

Cicoil's experienced engineering team works with customers to design cable assemblies that meet the specific needs of the toughest applications. Using advanced Solid Modeling and Cable Design Software, our engineers are able to meet the most difficult requirements of the most challenging, mission-critical applications. Custom-shaped cables, with complex molding, tubing, or vacuum requirements, utilizing a wide variety of connectors, are standard at Cicoil.

See below for examples of our custom assemblies. Please call Cicoil to speak to an engineer about your application.
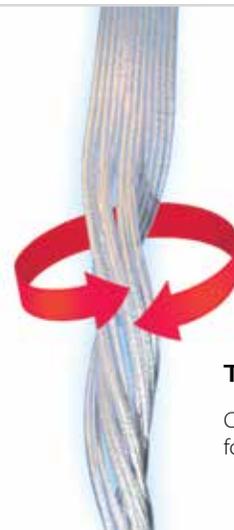
Any Connector

- 'D' Sub, Micro 'D', and Nano connectors for small gauge wire
- Circular connectors, Mil-Spec and Industrial
- Lightweight Fiberglass 'Header' Connectors machined in-house
- Assemblies available with virtually any connector

Custom Shapes – Formed Cables

- Custom shaped cable assemblies fit precisely into compact spaces
- Complex formed shapes possible, using our 3D modeling software
- Formed cables retain all performance characteristics, including flexibility

Torsional Flex

Cables are easily slit for Torsional Flexing.

Space/Vacuum

- Space/Vacuum Cables meet NASA and ASTM E-595 Low Outgassing Requirements of <1% TML (Total Material Loss), and <0.1% CVCM (Collected Volatile Condensable Material)
- Cables are 100% tested and certified to be low outgassing
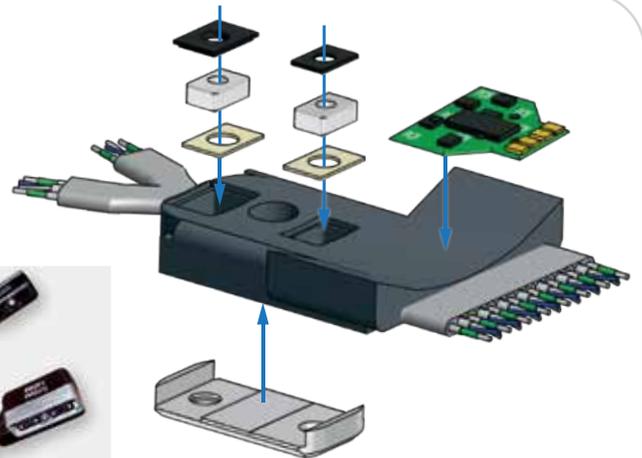- Cables meet Class 1 Clean Room requirements, with zero particulates

Tubing

- Tubing can be incorporated into any Cicoil Flat Cable
- Teflon®, PVC, Polyurethane or Tygon® Tubing Options available, in standard sizes up to .375" diameter
- Flat 'Tubing Only' cables available, with a mix of virtually any tubing types and sizes
- Tubing Assemblies with Tri-Clamp Fittings, Barbed connectors or Luer Adapters available
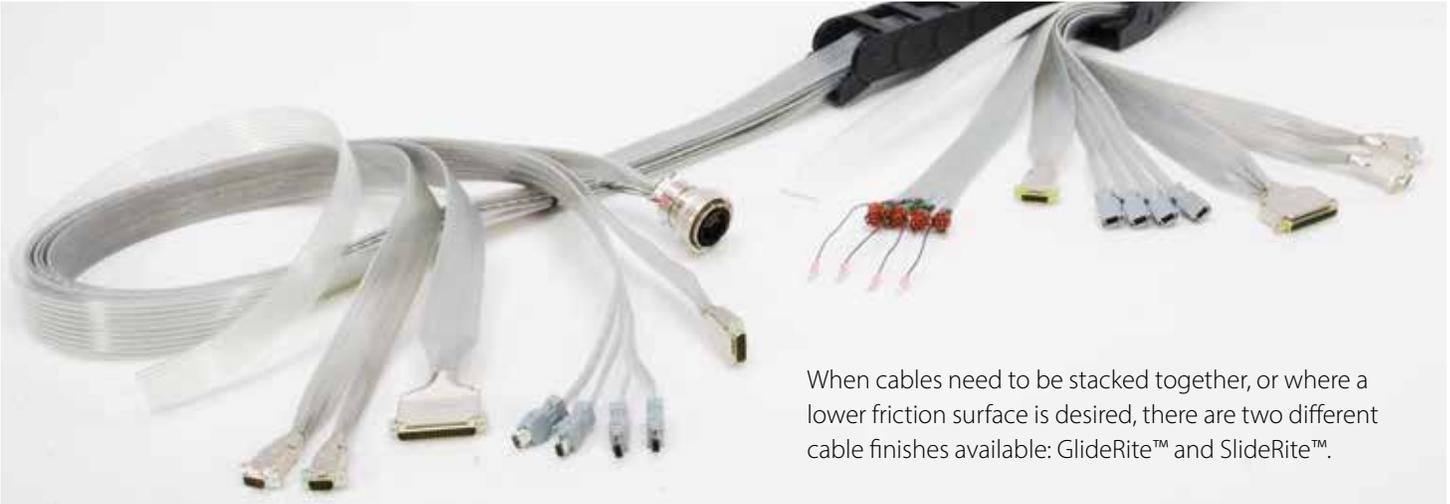
Molding

- Molded connector backshells from hard or flexible Mil-Spec materials
- Complex molding capabilities, including PCBs, metal plates, and insulated junctions
- All tooling designed and manufactured in-house, for fast prototyping

Complex 3D Mold-Making Capabilities

Low Friction Options

When cables need to be stacked together, or where a lower friction surface is desired, there are two different cable finishes available: GlideRite™ and SlideRite™.
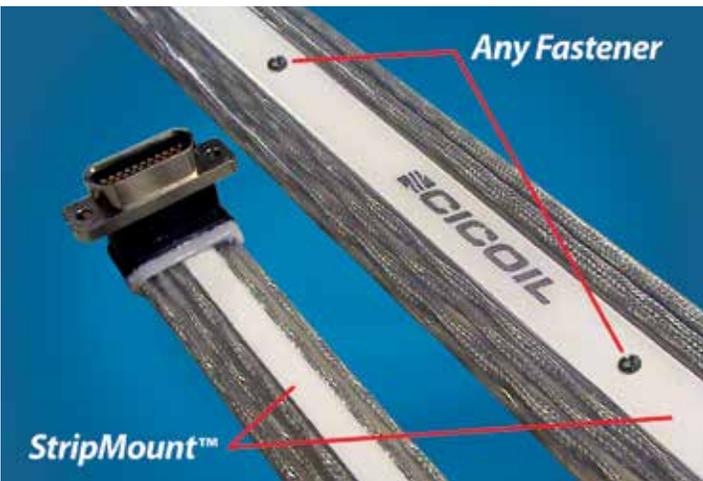
GlideRite™:

- The lowest friction available, the cable is as slippery as Teflon®
- Compound is chemically bonded to the cable, and will not rub or peel off
- Cable retains all performance characteristics, including temperature range and flexibility (See Tech Note).
- Continuous lengths not available, cable needs to be supplied in 30-80 foot lengths

SlideRite™:

- Reduced friction, similar to a PVC cable jacket
- Compound is chemically bonded to the cable, and will not rub or peel off
- Cable retains all performance characteristics, including temperature range and flexibility
- Continuous lengths can be coated
- Makes cables slightly cloudy in color

StripMount™ Integrated Mounting Strip

Any Fastener

CICOIL

StripMount™

Benefits:

- Standard fasteners mount cables to any surface
- Saves space by eliminating cable conduit and cable tie systems
- Fiberglass-reinforced strip has 250 lbs. holding force
- Stackable: Multiple cables can be stacked and secured by a single fastener

StripMount™ is available with *any* Cicoil cable.

Wire Conductors of Your Choice

Use common hardware such as screws, rivets or 1/4-turn fasteners to secure cable

Flexx-Sil™ Jacket

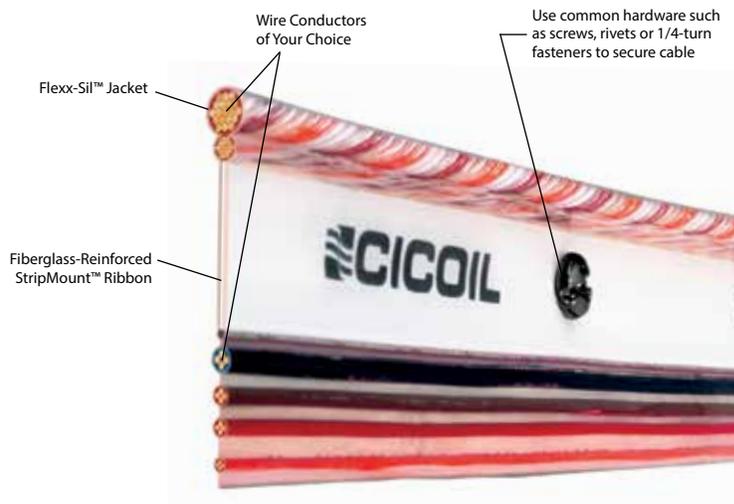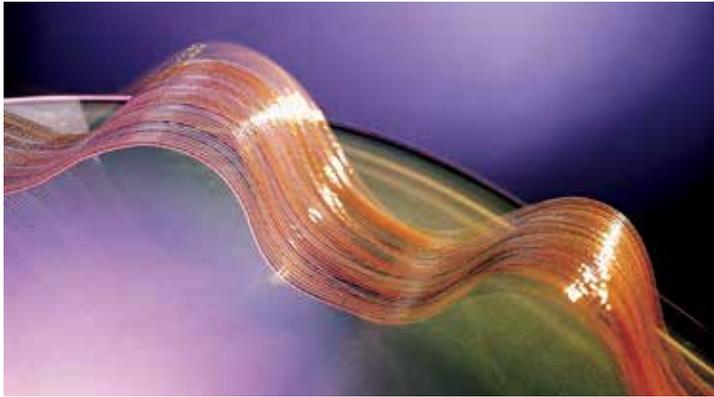Fiberglass-Reinforced StripMount™ Ribbon

Cicoil's StripMount™ design makes it quick and easy to mount cables to any surface. The patented design allows for holes to be easily punched or drilled through the StripMount™ cable reinforcement at whatever intervals you need. Use any fasteners to attach the cable to any surface. Rather than using expensive, difficult cable management systems, StripMount™ lets you attach cables anywhere. You can even stack up and drill through multiple cables!

Online Cable Configurator – Easy as 1-2-3!

Design Your Own Flat Cable in Just Minutes! Over 200 Million Potential Configurations. Try It Today!
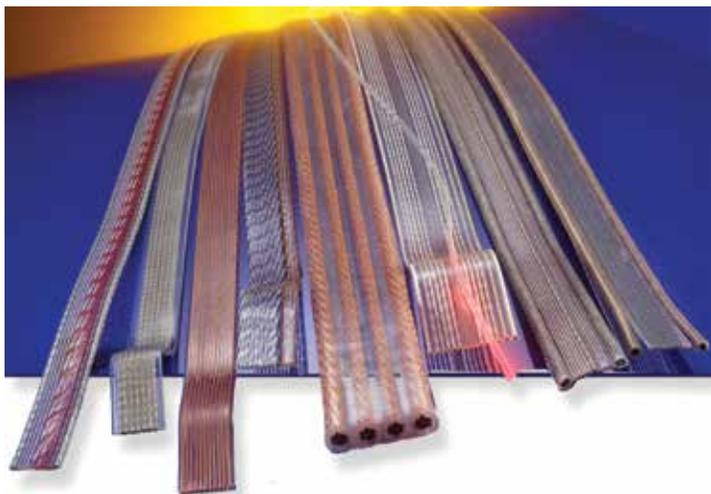

Custom design your own cable in real time at Cicoil.com with our online Cable Configurator. It features drag & drop simplicity to design any flat cable, and get an immediate drawing and quote.

Shipped In Less Than 2 Weeks!

Your custom cable is manufactured and shipped within two weeks of your order.

Cables can be constructed of many elements, including shielded Power conductors, shielded Signal conductors, Video and Coax wires, Tubing for Fluids or Gases, and other design elements like Cicoil's patented StripMount™ fastening strip. Immediately after constructing a flat cable design, you will receive an engineering drawing and a price quotation.
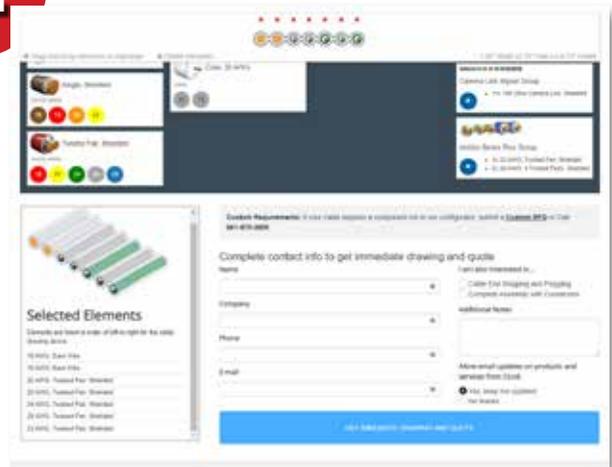
Try out the Cicoil Flat Cable Configurator today. Find it at:

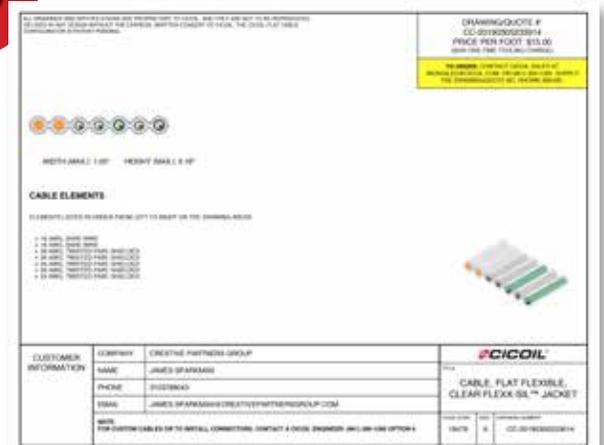*http://www.cicoil.com/flat-cable/configurator*

1 — Click on Conductors From Menu Choices

2 — See Your Cable Built in Real Time

3 — Get a Drawing with Pricing

Flexible Flat Cables & Cable Assemblies

661-295-1295 ◾ Cicoil.com

Cicoil has been the leader in high performance flat cable technology for over fifty years. Our cables are used in thousands of demanding applications, in a multitude of industries. Whenever high performance flat cables are needed, Cicoil is The Clear Choice.

Military/Aerospace

Cicoil has thousands of cable assemblies operating in the most sophisticated missile, fighter aircraft, commercial aviation, and space applications. Cicoil's Flexx-Sil™ cables are ideal for mission-critical military and aerospace applications.

Semiconductor Equipment

Cicoil Flexx-Sil™ Cables and Cable Assemblies have been used by most major semiconductor equipment manufacturers, in some of the most demanding applications in the industry. Wafer robots, deposition equipment, cleaning robots, and wafer inspection are some of the applications that use Cicoil cables.

Medical

Our cables and cable assemblies are used in a wide variety of medical applications, including automated medical equipment, medical robotics, testing equipment, and also human medical devices like hearing aids.

Industrial Automation/Motion Control

Our high performance cable assemblies are used in a wide variety of extremely demanding motion control and industrial automation applications. Linear motor stages, multi-axis motion systems, robotic equipment, servo axes, and packaging equipment all use Cicoil flexible cables to achieve optimum, reliable performance.

CICOIL®
Flexible Flat Cables

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